

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

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|--|---|--|
| Applicant's or agent's file reference 02008-00 PCT | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/US 03/19388 | International filing date (day/month/year) 20/06/2003 | (Earliest) Priority Date (day/month/year) 22/07/2002 |
| Applicant CYTEC TECHNOLOGY CORP. | | |

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT. J 03/19388

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C01F7/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C01F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|--|-----------------------|
| A | <p>DATABASE CA 'Online! CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; KAZAKOV, V. G. ET AL: "Heating and evaporation of silicon containing aluminate solutions" retrieved from STN Database accession no. 92:61106 CA XP002262370 abstract & TSVETNYE METALLY (MOSCOW, RUSSIAN FEDERATION) (1979), (10), 45-8 ,</p> <p style="text-align: center;">--- -/--</p> | 1-18 |

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

21 November 2003

Date of mailing of the international search report

03/12/2003

Name and mailing address of the ISA

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Authorized officer

Zalm, W

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/19388

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|---|-----------------------|
| A | <p>DATABASE WPI Section Ch, Week 197709 Derwent Publications Ltd., London, GB; Class A97, AN 1977-16031Y XP002262372 & SU 500 290 A (ALUM MAGN ELECTR IND), 28 May 1976 (1976-05-28) abstract</p> <p>---</p> | 1-19 |
| A | <p>DATABASE CA 'Online! CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; KAZAKOV, V. G. ET AL: "Improvement in the evaporation of soda-alkaline aluminate solutions" retrieved from STN Database accession no. 89:148780 CA XP002262371 abstract & TSVETNYE METALLY (MOSCOW, RUSSIAN FEDERATION) (1978), (6), 40-2 ,</p> <p>---</p> | 1-18 |
| A | <p>US 5 415 782 A (DIMAS PETER A) 16 May 1995 (1995-05-16) cited in the application the whole document</p> <p>---</p> | 1-18 |
| A | <p>US 6 086 771 A (COUNTER JAMES A ET AL) 11 July 2000 (2000-07-11) the whole document</p> <p>---</p> | 1-18 |
| A | <p>WO 97 41065 A (CYTEC TECH CORP) 6 November 1997 (1997-11-06)</p> <p>-----</p> | |

INTERNATIONAL SEARCH REPORT

Inform: on patent family members

International Application No

PCT, JS 03/19388

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| SU 500290 | A | 25-01-1976 | SU 500290 A1 | 25-01-1976 |
| US 5415782 | A | 16-05-1995 | NONE | |
| US 6086771 | A | 11-07-2000 | US 6048463 A | 11-04-2000 |
| | | | US 6036869 A | 14-03-2000 |
| | | | AU 746403 B2 | 02-05-2002 |
| | | | AU 1813699 A | 05-07-1999 |
| | | | BR 9813550 A | 10-10-2000 |
| | | | CA 2314946 A1 | 24-06-1999 |
| | | | EP 1051227 A1 | 15-11-2000 |
| | | | WO 9930794 A1 | 24-06-1999 |
| WO 9741065 | A | 06-11-1997 | US 5733460 A | 31-03-1998 |
| | | | AU 717997 B2 | 06-04-2000 |
| | | | AU 2742897 A | 19-11-1997 |
| | | | BR 9708835 A | 03-08-1999 |
| | | | CA 2252697 A1 | 06-11-1997 |
| | | | CN 1216968 A | 19-05-1999 |
| | | | DE 69701220 D1 | 02-03-2000 |
| | | | DE 69701220 T2 | 28-09-2000 |
| | | | EP 0896570 A1 | 17-02-1999 |
| | | | ES 2142161 T3 | 01-04-2000 |
| | | | GR 3033217 T3 | 31-08-2000 |
| | | | RU 2189357 C2 | 20-09-2002 |
| | | | WO 9741065 A1 | 06-11-1997 |
| SU 500290 | T | | NONE | |

XP-002262370

FILE CA

CA Caesar accession number : 1757

- 92:61106 CA
- Heating and evaporation of silicon containing aluminate solutions
- Kazakov, V. G.; Potapov, N. G.; Bobrov, A. E.
- USSR
- Tsvetnye Metally (Moscow, Russian Federation) (1979), (10), 45-8
- CODEN: TVMTAX; ISSN: 0372-2929
- Journal
- Russian
- 49-3 (Industrial Inorganic Chemicals)
- The hydrophobic organosilicon liq. polymer GKZh-10 was used to inhibit scale formation in the heating and evapn. of Na aluminate solns. The scale formation rate was decreased by a factor of 1.5-1.7 in the presence of 10 mg GKZh-10/L as a result of covering the heat-exchange surface with a liq. film of Na aluminosilicate.
- silicone polymer antiscaling agent; sodium aluminate evapn scale control
- Scale (coating)
(control of, by silicone in sodium aluminate soln.)
- Siloxanes and Silicones, uses and miscellaneous
- RL: USES (Uses)
(scale control by, in sodium aluminate soln.)
- 11138-49-1
- RL: USES (Uses)
(evapn. of soln. of, scale control in)

XP-002262372

AN - 1977-16031Y [09]

A - [001] 010 04- 05- 229 38- 47& 477 623 624 721

- [002] 010 04- 05- 229 38- 47& 477 623 624 721

CPY - ALMG

- LESO-R

DC - A97 J08

FS - CPI

IC - C02B5/06 ; C23F14/02

MC - A06-A00E2 A12-W11 J08-D02

PA - (ALMG) ALUM MAGN ELECTR IND

- (LESO-R) LENG D SOVIET TRADE

PN - SU500290 A 19760528 DW197709 000pp

PR - SU19711731015 19711227

XIC - C02B-005/06 ; C23F-014/02

AB - SU-500290 Deposition of scale on metallic surfaces during the heating and evapn. of alkaline solns. is minimised by adding to the soln. organo-silicone polymer as inhibitor.

- The polymer is adsorbed on the heat exchanger surfaces, forming a film which prevents the crystals formed from adhering to metal. A commercially available polymer can be used. The method finds application in the processing of e.g., aluminate solns.

- Crystalline solids which deposit on the molecular film of the polymer have low adhesion and are easily detached and washed off by the flow of fluid. The film withstands alkali concns. of up to 300 g./l. Na₂O and temps. of 150 degrees C.

IW - SCALE FORMATION INHIBIT CONSIST POLYMER FORMING PROTECT FILM HEAT EXCHANGE SURFACE

IKW - SCALE FORMATION INHIBIT CONSIST POLYMER FORMING PROTECT FILM HEAT EXCHANGE SURFACE

NC - 001

OPD - 1971-12-27

ORD - 1976-05-28

PAW - (ALMG) ALUM MAGN ELECTR IND

- (LESO-R) LENG D SOVIET TRADE

TI - Scale formation inhibitor - consisting of organosilicone polymer forming protective film on heat exchanger surfaces

XP-002262371

) FILE CA

CA Caesar accession number : 1758

- 89:148780 CA
- Improvement in the evaporation of soda-alkaline aluminate solutions
- Kazakov, V. G.; Potapov, N. G.; Bobrov, A. E.
- USSR
- Tsvetnye Metally (Moscow, Russian Federation) (1978), (6), 40-2
- CODEN: TVMTAX; ISSN: 0372-2929
- Journal
- Russian
- 49-9 (Industrial Inorganic Chemicals)
- Addn. of GKZh-10 surfactant [30% soln. of Na Me (or Et) silicone] inhibit the formation of Na_2CO_3 incrustations on the heat-exchanger surfaces during evapn. of aluminate solns. The optimum addn. was 50-100 mg surfactant/L aluminate soln.
- silicone surfactant scale inhibitor; soda aluminate soln evapn
- Siloxanes and Silicones, uses and miscellaneous
- RL: USES (Uses)
 - (Et sodium, scale formation inhibitors, in evapn. of sodium aluminate soln.)
- Siloxanes and Silicones, uses and miscellaneous
- RL: USES (Uses)
 - (Me sodium, scale formation inhibitors, in evapn. of sodium aluminate soln.)
- Scale (coating)
 - (sodium carbonate, formation of, during evapn. of sodium aluminate soln., inhibition of)
- 1302-42-7
- RL: USES (Uses)
 - (evapn. of solns. of, inhibition of scale formation in)
- 497-19-8, uses and miscellaneous
- RL: USES (Uses)
 - (scale, formation of during evapn. of sodium aluminate soln., inhibition of)